

New York State Net Metering Study

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Background

- On April 24, 2014, the NYS PSC issued an Order in Case 03-E-0188 authorizing funding and implementation of NY-Sun. As part of the Order, the Commission ordered:
 - *“NYSERDA shall prepare a report, in consultation with the DPS Staff, which evaluates the costs and benefits of New York’s current net metering policies...”*
- DPS staff and NYSERDA staff agreed that a report should be completed in a time frame that enables it to inform the “Reforming the Energy Vision” (REV) process, initiated separately by the Commission (Case 14-M-0101, 4/24/2014).



General Purpose of Study

- Create an analytical framework to examine the benefits/costs of net energy metering (NEM) and more generally the value of solar resources in NYS.



- *What are the identified benefits and costs of solar PV to consider?*
- *What are the available and appropriate methods to formulate values for these components?*

- The report will not make policy recommendations, but rather lay out a number of perspectives that are intended to elicit input from stakeholders to inform future analysis.

Consultant Support

- Energy+Environmental Economics (E3) has been selected to help develop the analytical framework of the report, which is in progress.
- E3 has authored and performed several solar PV and net energy metering (NEM) studies:
 - Nevada Net Energy Metering Impacts Evaluation
 - California Net Energy Metering Ratepayer Impacts Evaluation
 - California Successor to the Net Metering Tariff
 - Evaluation of Hawaii's Renewable Energy Policy and Procurement
 - Formulation of a Net Metering methodology in South Carolina on behalf of the SC Office of Regulatory Staff

Study Objectives

- Literature Review
- Identification and Monetization of Solar PV Value Components
- Benefit – Cost Tests

Literature Review

- Review and assess existing analytical studies and methodologies related to estimating costs and benefits of net metering and alternative mechanisms based on the estimated value of solar resources.
 - Evaluate the applicability of various approaches to New York State.
 - Some preliminary findings of the literature review are shown on slides 12-13.



Solar PV Value Components

- Identify and assess possible individual benefit and cost components for solar resources.
 - Assess methodologies for estimating and projecting each component value.
 - Estimate monetized value and/or range of values for components, using placeholder/proxy values.
 - *Necessary to inform the REV proceeding.*
 - *Analytical framework may inform future work.*
 - Project each value over the analysis period.
 - Assess levels of uncertainty for each component.

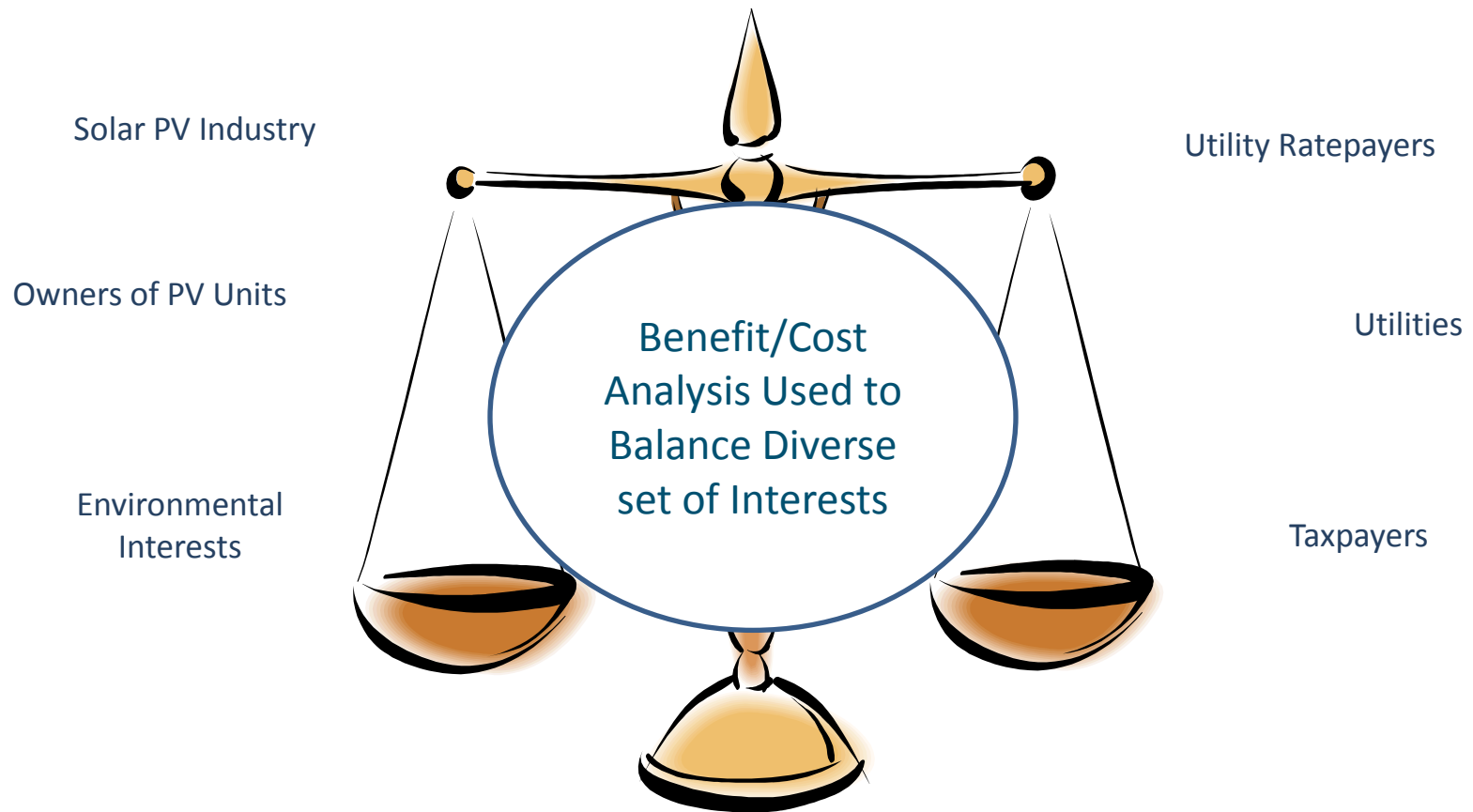
Solar PV Value Components

Potential Value Components (list may not be exhaustive)	High Level Description
Avoided Energy	Energy output from solar PV resource reduces the energy procurement requirement of the local TO.
Avoided Capacity	As solar PV resources reduce system peak, the collective TOs' cost of procuring capacity is reduced. The NYISO sets capacity requirements as a function of system peak.
Avoided Losses	Increased output from solar PV reduces the amount of system losses as more demand for electricity is met locally.
Avoided Ancillary Services	System costs for certain ancillary services could be reduced as solar PV is added.
Distribution Deferral	Solar PV may reduce or delay the cost of distribution system upgrades.
Transmission Deferral	Solar PV may reduce or delay the cost of transmission system upgrades.
Monetized CO2	System savings associated with lower CO2 emissions as valued by regulations.
Market Price Effect	The addition of solar PV may reduce wholesale energy costs for many consumers (even non-participants) as demand for grid electricity is reduced and prices drop.
Fuel Hedge	Solar PV resources have no underlying fuel price volatility risk.
Social Cost of CO2	Monetized damages associated with an incremental increase in carbon emissions in a given year.
Externality/Health	Increased generation from solar PV displaces generation from fossil fuel, reducing overall emissions from several pollutants. This may lead to better health outcomes and other externality benefits.

Value included in rates (wholly or to some extent)

Value not currently included in rates.

Benefit – Cost Tests



Benefit – Cost Tests

- Estimate and differentiate impacts of solar PV to utility ratepayers, including both participants and non-participants, utilities, and society as a whole.
- Apply applicable tests to estimate the impact from the desired perspective. For example:
 - What are the ratepayer impacts?
 - *Ratepayer Impact Measure (RIM) test.*
 - What are the statewide costs and benefits if we include externalities, such as health benefits and the social cost of carbon?
 - *Societal Cost Test (SCT).*



Benefit – Cost Tests

Illustrative Components

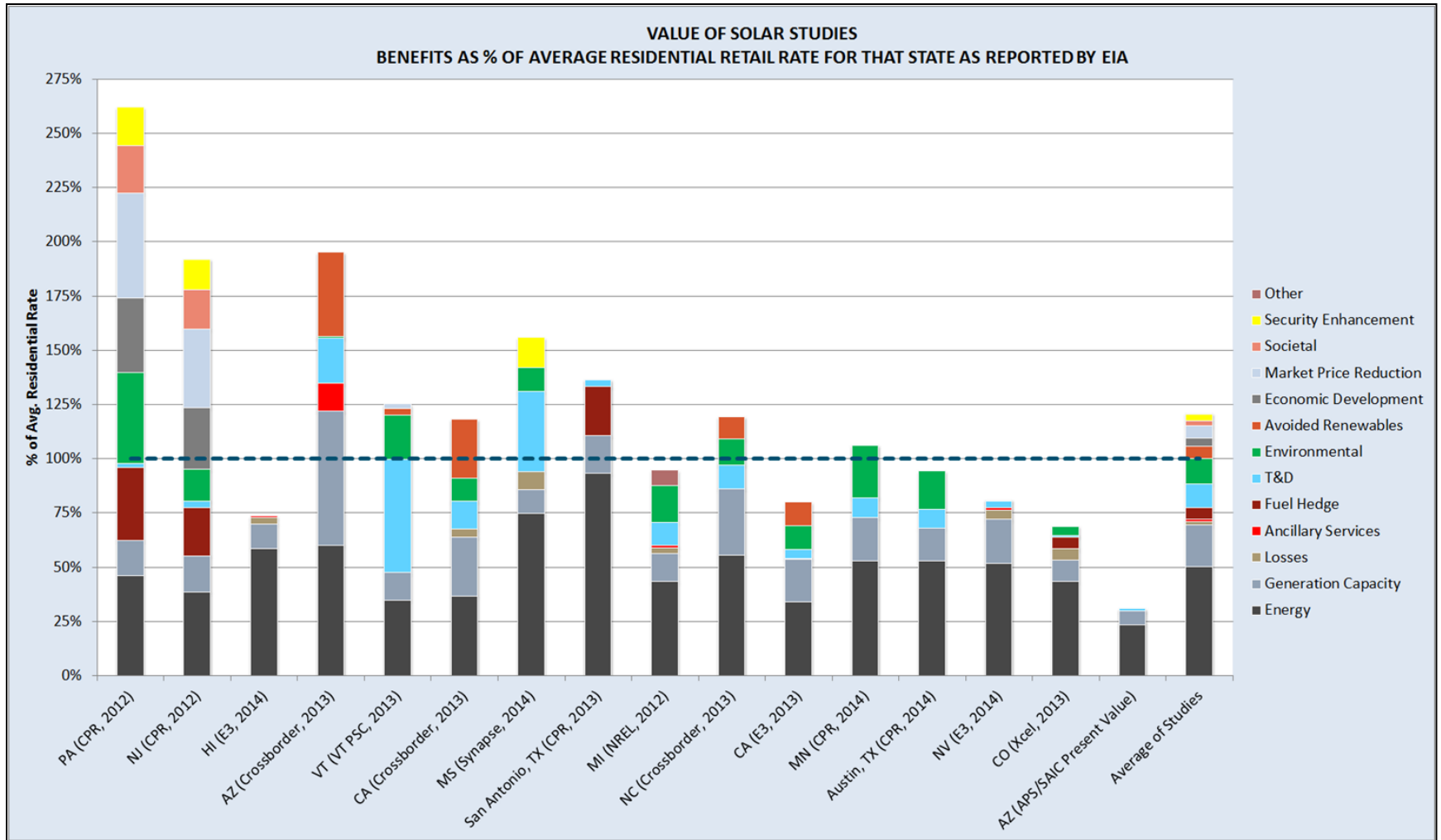
	Ratepayer Impact Measure	Societal Cost Test
PV System Costs		Cost
Integration Costs	Cost	Cost
Utility Avoided Costs	Benefit	Benefit
Customer Bill Savings (Utility Lost Revenue)	Cost	
Incentives	Cost	
Federal tax Credits		Benefit
State tax Credits		
Administration Costs	Cost	Cost
Societal costs/benefits (<i>i.e.</i> externalities)		Benefit

Literature Review

EXAMPLES OF RECENT NEM VALUE STUDIES FROM STATES, UTILITIES, CONSULTANCIES, AND STAKEHOLDERS

STATE	STUDY	BENEFITS ANALYZED										COSTS ANALYZED				BENEFIT/COST TESTS										
		Avoided Energy (incl. O&M, fuel)	Avoided Fuel Hedge	Avoided Capacity	Avoided Losses	Avoided or Deferred T&D Investment	Avoided Ancillary Services	Market Price Reduction	Avoided Renewables Procurement	Environmental	Security Enhancement	Societal (incl. economic/jobs)	PV Integration	Program Administration	Bill Savings	Utility/DER Incentives	General/Other Costs	Total Resource Cost Test (TRC)	Program Administrator Cost Test (PACT) or Utility Cost Test (UCT)	Modified PACT/UCT with GHG Adder	Ratepayer Impact Measure (RIM)	Participant Cost Test (PCT)	Societal Cost Test (SCT)	Revenue Requirement Savings: Cost Ratio	Cost Comparison of NEM/Utility Purchase/FIT	General Benefit/Cost Comparison
ARIZONA	Crossborder Energy (2013)	•		•	•	•						•		•	•	•				•						
ARIZONA	APS/SAIC (2013)	•		•		•																				
CALIFORNIA	E3 (2013)	•		•	•	•		•	•			•	•	•	•	•	•	•		•	•	•				
CALIFORNIA	Crossborder Energy (2013)	•		•	•	•		•	•			•							•							
COLORADO	Xcel (2013)	•	•	•	•	•					•															
HAWAII	E3 (2014)	•		•	•		•																		•	
MASSACHUSETTS	La Capra Associates (2013)	•		•		•		•	•				•	•		•	•	•								
MICHIGAN	NREL (2012)	•		•	•	•																				
MINNESOTA	Clean Power Research (2014)	•		•		•																				
MISSISSIPPI	Synapse Energy Economics (2014)	•		•	•	•		•	•	•			•	•	•	•	•				•			•		
NORTH CAROLINA	Crossborder Energy (2013)	•		•	•	•		•	•			•		•		•										•
NEW JERSEY	Clean Power Research (2012)	•	•	•	•	•		•		•		•														
NEVADA	E3 (2014)	•		•	•	•					•	•	•	•	•	•	•	•		•	•	•				
PENNSYLVANIA	Clean Power Research (2012)	•	•	•	•	•		•		•		•														
TEXAS (AUSTIN)	Clean Power Research (2014)	•		•	•	•																				
TEXAS (SAN ANTONIO)	Clean Power Research (2013)	•	•	•	•	•																				
VERMONT	Vermont PSC (2013)	•		•		•	•	•	•			•	•						•							

Literature Review



Process and Potential Next Steps

- This study schedule enables the report to inform the REV process in its early stages.
 - Net Metering Study deliverable due in December.
 - As discussed, the short timeline for this study requires that data sources for solar value components be “proxy or placeholder” values, and also necessitates various simplifying assumptions.
 - Next steps: Report released for stakeholder feedback. Additional work may be done that could involve new analytical work to establish more precise values and policy recommendations.
- This approach, without policy recommendations in the initial study, allows for a pause between analyses to solicit stakeholder feedback prior to any further analytical work being done, if any.
 - We will develop and announce a process where stakeholders will be encouraged to comment on analytical approaches, methodologies, data development, inclusion or exclusion of various components, policy directions, etc.

Thank You!

Questions and/or Discussion